

## ROLE OF EXPECTANCY, AMNESIA, AND HYPNOTIC INDUCTION IN THE PERFORMANCE OF POSTHYPNOTIC BEHAVIOR<sup>1</sup>

RONALD L. GANDOLFO<sup>2</sup>

*Louisiana State University*

The role of expectation, amnesia, and hypnotic induction in the performance of posthypnotic behavior was investigated. Except for controls, Ss were instructed to resist a posthypnotic suggestion along with either a positive or negative expectation that they would be successful in resisting the suggestion. The Ss were given the suggestion either immediately before or after a hypnotic induction. The Ss' responses to the suggestion were significantly ( $p < .05$ ) determined by what expectations they had regarding their ability or inability to resist the suggestion. The Ss reporting amnesia were more responsive to the suggestion. Whether or not Ss received the suggestion during trance appeared to be of little importance. The Ss' responsiveness to suggestions was explained in terms of role enactment.

Barber (1964) has argued against the use of "trance" or "hypnotic-state" concepts. He indicated that the criterion for inferring a hypnotic state was a heightened level of response to suggestions. Because the antecedent variable (hypnotic state) was inferred from the consequent variable (response to suggestions), the reasoning was circular.

Many studies have demonstrated that control Ss can successfully duplicate the performances of hypnotic Ss (Barber & Calverley, 1964a, 1964b; Bowers, 1967; Shor, 1962; Thorne, 1967). Demand characteristics (Orne, 1959, 1962), Ss' task motivation (Barber & Calverley, 1968; Edmonston & Robertson, 1967; Slotnick & London, 1965), and Ss' expectations (Barber & Calverley, 1965; Melei & Hilgard, 1964; Shor, Orne, & O'Connell, 1966; Zamansky, Scharf, & Brightbill, 1964) were shown to be important variables in producing hypnotic-like behavior irrespective of hypnotic induction procedures. However, studies using Ss as their own control found greater S responsiveness to suggestions following hypnotic induction over other pro-

cedures (Barber & Calverley, 1968; Edmonston & Robertson, 1967; Hilgard & Tart, 1966).

The present study tested the hypothesis that occurrence of presumably compulsive and irresistible posthypnotic behavior can be entirely accounted for by direct suggestion and operating demand characteristics, induction of a "trance state" being unnecessary and adding no quantitative changes in the occurrence of the behavior.

### METHOD

#### *Selection of Subjects*

Fifty-four volunteer undergraduate female students enrolled at Louisiana State University were included in the study. The Ss were given the Minnesota Multiphasic Personality Inventory and an interview in order to eliminate Ss who may have had severe personality or medical problems. Some time later, Ss participated in a group hypnosis demonstration, following which they were administered all items from the Stanford Hypnotic Susceptibility Scale (SHSS) (Weitzenhoffer & Hilgard, 1959), Form A followed by Form B in one of two training sessions. Only Ss who responded to at least 10 of the 12 test suggestions on either form were used in the study. The Ss who reached passing criterion on Form A were not administered Form B. Approximately 1 in 5 Ss who reached criterion passed the amnesia item on either form and were retained for the PHS-TA condition explained below. The Ss were required to respond positively to a posthypnotic suggestion item on either form.

The Ss were also administered the Digit Symbol test from the Wechsler Adult Intelligence Scale (Wechsler, 1955). The test was administered in

<sup>1</sup> This article is based on a dissertation submitted to the faculty of Louisiana State University in partial fulfillment of the requirement for the PhD. The author wishes to acknowledge his appreciation to Joseph G. Dawson for his advice and support.

<sup>2</sup> Now with the Fresno County Department of Mental Health, Fresno, California.

Requests for reprints should be sent to the author, 3829B East Alamos, Fresno, California 93726.

standardized fashion to obtain a base score with which to compare later performance on the same test.

### Experimental Procedure

A tape recorder was used to administer a standard hypnotic induction and the posthypnotic suggestion to all *Ss* during the experiment proper. Standardized tape-recorded presentations have the advantage of reducing or eliminating *E* bias.

All *Ss* participated in the following four phases of the study in this order: prehynotic induction instructions administered by *E*<sub>1</sub>, hypnotic induction administered by tape recorder in the presence of *E*<sub>2</sub>, performance on a posthypnotic task in the presence of *E*<sub>2</sub>, and a postexperimental inquiry conducted by *E*<sub>2</sub>.

There were two main factors or treatment variables: an "instructional-expectational" factor and a "posthypnotic-suggestion" factor. Each *S* fell into one of three conditions under the posthypnotic-suggestion factor, and also into one of three conditions under the instructional-expectational factor. An equal number of *Ss* were assigned to all nine possible combinations between the two factors. There were six *Ss* per treatment combination.

Instructions and expectations were administered by *E*<sub>1</sub> in the absence of *E*<sub>2</sub> while *S* was awaiting hypnotic induction. There were three conditions under this factor: (a) Resistance with positive expectation (RE+): The *S* was told by *E*<sub>1</sub> to resist performing the posthypnotic suggestion that *S* was to receive while in trance. *E*<sub>1</sub> imparted to *S* the expectation that *S* would successfully resist performance of the act. (b) Resistance with negative expectation (RE-): The *S* was given the same instructions as in RE+, except that *E*<sub>1</sub> imparted to *S* the expectation that *S* would not be able to successfully resist performance of the act. (c) Neutral (N): The *S* was not given any instructions to resist the posthypnotic suggestion or any expectation regarding her posthypnotic behavior. The *S* was only told by *E*<sub>1</sub> that she was to be hypnotized shortly by *E*<sub>2</sub>.

Posthypnotic-suggestion factor refers to the differing conditions under which the posthypnotic suggestion was administered. The posthypnotic suggestion was the same for each *S*. The voice on the tape was that of *E*<sub>2</sub>. The posthypnotic suggestion essentially was that *S* would not be able to perform as well as the first time on the Digit Symbol test when it was administered to *S* posthypnotically because of hand rigidity and difficulty in concentrating.

The three conditions under this factor were: (a) Posthypnotic suggestion administered before trance induction (PHS): The *S* heard the posthypnotic suggestion in the presence of *E*<sub>2</sub> immediately before trance induction. The *S* was told that hearing a suggestion directly before trance induction has the same effect as when a suggestion is administered during trance. The *S* was also told that she would not receive the suggestion while in trance. The *E*<sub>2</sub> then hypnotized *S*, after which *S* was awakened. No post-

hypnotic suggestion was administered during trance. (b) Posthypnotic suggestion administered after trance induction with reported amnesia (PHS-TA): The *S* was administered the posthypnotic suggestion immediately after she was hypnotized. The *S* was then told that she would not remember the events occurring during the trance after she was awakened. Only those *Ss* reporting amnesia or vague partial memory of trance events were retained in this condition. (c) Posthypnotic suggestion administered after trance induction with no reported amnesia (PHS-T): The *Ss* in this condition underwent the same procedures as did PHS-TA *Ss*. They differed only in that they clearly remembered what occurred during trance.

The *Ss* were hypnotized in groups of five to eight. All *Ss* within a group belonged to the same posthypnotic-suggestion condition, but varied with respect to which instructional-expectational condition they were assigned. The *E*<sub>2</sub> was always blind as to which instructional-expectational condition each *S* belonged.

All *Ss* received the same treatment on the experimental task. After being awakened from the hypnotic trance, each *S* was administered the same Digit Symbol test that they had taken earlier. Following a postexperimental inquiry, all *Ss* were re-hypnotized to remove any effect of the posthypnotic suggestion.

### RESULTS

Posthypnotic-suggestion (P-S) conditions and the instructional-expectational (I-E) conditions are represented by an analysis of variance design as shown in Table 1. Mean performance of *Ss* in each treatment combination reflected change in performance over two administrations of the Digit Symbol test. The *Ss*' score from the first administration of the test was subtracted from *S*'s score on the second administration, and the result added to a constant of 100 to yield a posthypnotic score. Thus any posthypnotic score above or below 100, respectively, indicated

TABLE 1

ANALYSIS OF VARIANCE DESIGN WITH MEANS AND STANDARD DEVIATIONS OF POSTHYPNOTIC SCORES

P-S condition	I-E condition							
	N		RE -		RE +		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PHS	74	7.0	76	16.9	104	3.0	85	17.7
PHS-T	88	2.8	90	8.2	101	4.1	93	8.4
PHS-TA	61	8.5	59	17.0	92	10.8	71	19.7
Total	74	13.0	74	22.7	99	9.1		

TABLE 2

SIGNIFICANCE OF DIFFERENCES BETWEEN ANY TWO P-S CONDITIONS FOR EACH I-E CONDITION

P-S conditions compared	I-E condition		
	N	RE -	RE +
PHS-PHS-T	*	*	<i>ns</i>
PHS-PHS-TA	*	*	<i>ns</i>
PHS-T-PHS-TA	**	**	<i>ns</i>

\*  $p < .05$ .\*\*  $p < .01$ .

improved or deteriorated performance on the second administration of the test.

The Newman-Keuls test of mean comparisons indicated that all three P-S conditions differed significantly from each other ( $p < .01$ ). Comparisons over I-E conditions showed significant differences ( $p < .01$ ) between RE+ and either of the N or RE- conditions, although RE- and N did not differ from each other.

Tables 2 and 3 show significance of differences between any two conditions under one factor for any one condition on the other factor. Differences between RE+ Ss in PHS and PHS-TA conditions were almost significant as were the differences between RE+ and either the RE- or N Ss in the PHS-T condition.

## DISCUSSION

Examination of performance of Ss over I-E conditions indicates that Ss' responses to the posthypnotic suggestions were apparently determined largely by expectations they had. N and RE- Ss responded to the suggestion almost identically on an average for each

P-S condition. RE- Ss, of course, were given the expectation that they would not be able to resist the posthypnotic suggestion. Why did they perform so identically with N Ss who were given no instructions or expectations? It is likely that N Ss probably came to the experiment with the expectation that they would conform to whatever suggestions were given them. That people generally have many such prior expectations about hypnosis has been demonstrated by Dorcus, Brintnall, and Case (1941) and London (1961). RE+ Ss also responded in accord with their expectations, performing about the same or improving on the second administration of the Digit Symbol test.

The Ss' responses to the posthypnotic suggestion also varied depending on the P-S condition to which they had been assigned. The Ss reporting amnesia appear generally to be more responsive to suggestions than other Ss. PHS-TA Ss responded significantly more to the suggestion than other P-S Ss in both N and RE- conditions. Three PHS-TA Ss in the RE+ condition also deteriorated on their second test performance, although the average score for the whole group just failed to be significantly different from the other RE+ groups.

Surprisingly, PHS Ss responded significantly more to the posthypnotic suggestion than PHS-T Ss with the exception of the RE+ condition, in which Ss in both P-S groups were able to resist the suggestion. It is important to note that Ss in both PHS and PHS-T groups had shown the same levels of hypnotic susceptibility in previous training sessions. This result is contrary to what would be expected if a trance did indeed heighten responsiveness to suggestion. An expectational explanation seems more adequate. The Ss in the PHS-T group were given a suggestion for amnesia concerning trance events. However, these Ss reported no amnesia. Their memory of trance events had contradicted the suggestion for amnesia given during trance. Their awareness of this contradiction may have served to weaken their expectations regarding effectiveness of suggestions in general. The Ss in the PHS group had none of their expectations contradicted.

TABLE 3

SIGNIFICANCE OF DIFFERENCES BETWEEN ANY TWO I-E CONDITIONS FOR EACH P-S CONDITION

I-E conditions compared	P-S condition		
	PHS	PHS-T	PHS-TA
N-RE-	<i>ns</i>	<i>ns</i>	<i>ns</i>
N-RE+	*	<i>ns</i>	*
RE- -RE+	*	<i>ns</i>	*

\*  $p < .01$ .

The Ss do not appear to consciously plan to act out a role. If such were the case, it would be reasonable to expect that all good hypnotic Ss who responded to the posthypnotic suggestion would have also complied with the suggestion that they would be amnesiac. That they should comply with one suggestion but not the other implies that Ss do not have a clear awareness of a role that they are going to play during hypnosis. The Ss simulating hypnosis have previously been found to claim total amnesia for trance events, whereas hypnotic Ss under the same conditions often claimed only partial amnesia (Williamsen, Johnson, & Erikson, 1965).

Some of the Ss' verbalizations about their experiences further suggest that they do not plan their hypnotic experiences. Following the Digit Symbol test, one RE—S who reported amnesia remarked that she had been sure that she would be able to resist the suggestion. She could not even pick up the pencil to begin the test! Some N and RE—Ss voiced surprise that they were responding to suggestion.

It is logical to conclude that what happens during hypnosis can perhaps best be conceptualized under the role enactment conception of Sarbin and Anderson (1967). Role enactment connotes involvement, commitment, and seriousness. It is not simply just acting out a role as usually conceptualized. The S to some extent experiences the roles that he enacts. This enactment is perceived as genuine and real by S. The likelihood that S will enact a role depends almost wholly on what expectations he has had regarding his assumption of the role. The expectations he harbors may come from any number of varied sources such as books, movies, etc., the hypnotist being only one such source. The S may be only partially aware of what his expectations are.

## REFERENCES

- BARBER, T. X. "Hypnosis" as a causal variable in present-day psychology: A critical analysis. *Psychological Reports*, 1964, 14, 839-842.
- BARBER, T. X., & CALVERLEY, D. S. Experimental studies of "hypnotic" behavior: Suggested deafness evaluated by delayed auditory feedback. *British Journal of Psychology*, 1964, 55, 439-446. (a)
- BARBER, T. X., & CALVERLEY, D. S. An experimental study of "hypnotic" (auditory and visual) hallucinations. *Journal of Abnormal and Social Psychology*, 1964, 63, 13-20. (b)
- BARBER, T. X., & CALVERLEY, D. S. Empirical evidence for a theory of "hypnotic" behavior: Effects on suggestibility of five variables typically included in hypnotic induction procedures. *Journal of Consulting Psychology*, 1965, 29, 98-107.
- BARBER, T. X., & CALVERLEY, D. S. Toward a theory of "hypnotic" behavior: Replication and extension of experiments by Barber and co-workers (1962-65) and Hilgard and Tart (1966). *International Journal of Clinical and Experimental Hypnosis*, 1968, 16, 179-195.
- BOWERS, K. S. The effect of demands for honesty on reports of visual and auditory hallucinations. *International Journal of Clinical and Experimental Hypnosis*, 1967, 15, 31-36.
- DORCUS, R. M., BRINTNALL, A. K., & CASE, H. W. Control experiments and their relation to theories of hypnotism. *Journal of General Psychology*, 1941, 24, 217-221.
- EDMONSTON, W. E., JR., & ROBERTSON, T. G., JR. A comparison of the effects of task motivational and hypnotic induction instructions on responsiveness to hypnotic suggestibility scales. *American Journal of Clinical Hypnosis*, 1967, 9, 184-187.
- HILGARD, E. R., & TART, C. T. Responsiveness to suggestions following waking and imagination instructions and following induction of hypnosis. *Journal of Abnormal Psychology*, 1966, 71, 196-208.
- LONDON, P. Subject characteristics in hypnosis research: I. A survey of experience, interest, and opinion. *International Journal of Clinical and Experimental Hypnosis*, 1961, 9, 151-161.
- MELEI, J. P., & HILGARD, E. R. Attitudes toward hypnosis, self-predictions, and hypnotic susceptibility. *International Journal of Clinical and Experimental Hypnosis*, 1964, 12, 99-108.
- ORNE, M. T. The nature of hypnosis: Artifact and essence. *Journal of Abnormal and Social Psychology*, 1959, 58, 277-299.
- ORNE, M. T. On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, 1962, 17, 776-783.
- SARBIN, T. R., & ANDERSON, M. L. Role-theoretical analysis of hypnotic behavior. In J. E. Gordon (Ed.), *Handbook of clinical and experimental hypnosis*. New York: Macmillan, 1967.
- SHOR, R. E. Physiological effects of painful stimulation during hypnotic analgesia under conditions designed to minimize activity. *International Journal of Clinical and Experimental Hypnosis*, 1962, 10, 183-202.
- SHOR, R. E., ORNE, M. T., & O'CONNELL, D. N. Psychological correlates of plateau hypnotizability in a special volunteer sample. *Journal of Personality and Social Psychology*, 1966, 3, 80-95.

- SLOTNICK, R. S., & LONDON, P. Influence of instructions on hypnotic and nonhypnotic performance. *Journal of Abnormal and Social Psychology*, 1965, 70, 38-46.
- THORNE, D. E. Is the hypnotic trance necessary for performance of hypnotic phenomena? *Journal of Abnormal Psychology*, 1967, 72, 233-239.
- WECHSLER, P. *Manual for the Wechsler Adult Intelligence Scale*. New York: Psychological Corp., 1955.
- WEITZENHOFFER, A. M., & HILGARD, E. F. *Stanford Hypnotic Susceptibility Scale, Forms A and B*. Palo Alto, Calif.: Consulting Psychologists Press, 1959.
- WILLIAMSEN, J. A., JOHNSON, H. J., & ERIKSEN, C. W. Some characteristics of post-hypnotic amnesia. *Journal of Abnormal Psychology*, 1965, 70, 123-131.
- ZAMANSKY, H. S., SCHARF, B., & BRIGHTBILL, R. The effect of expectancy for hypnosis on prehypnotic performance. *Journal of Personality*, 1964, 32, 236-248.

(Received June 26, 1970)